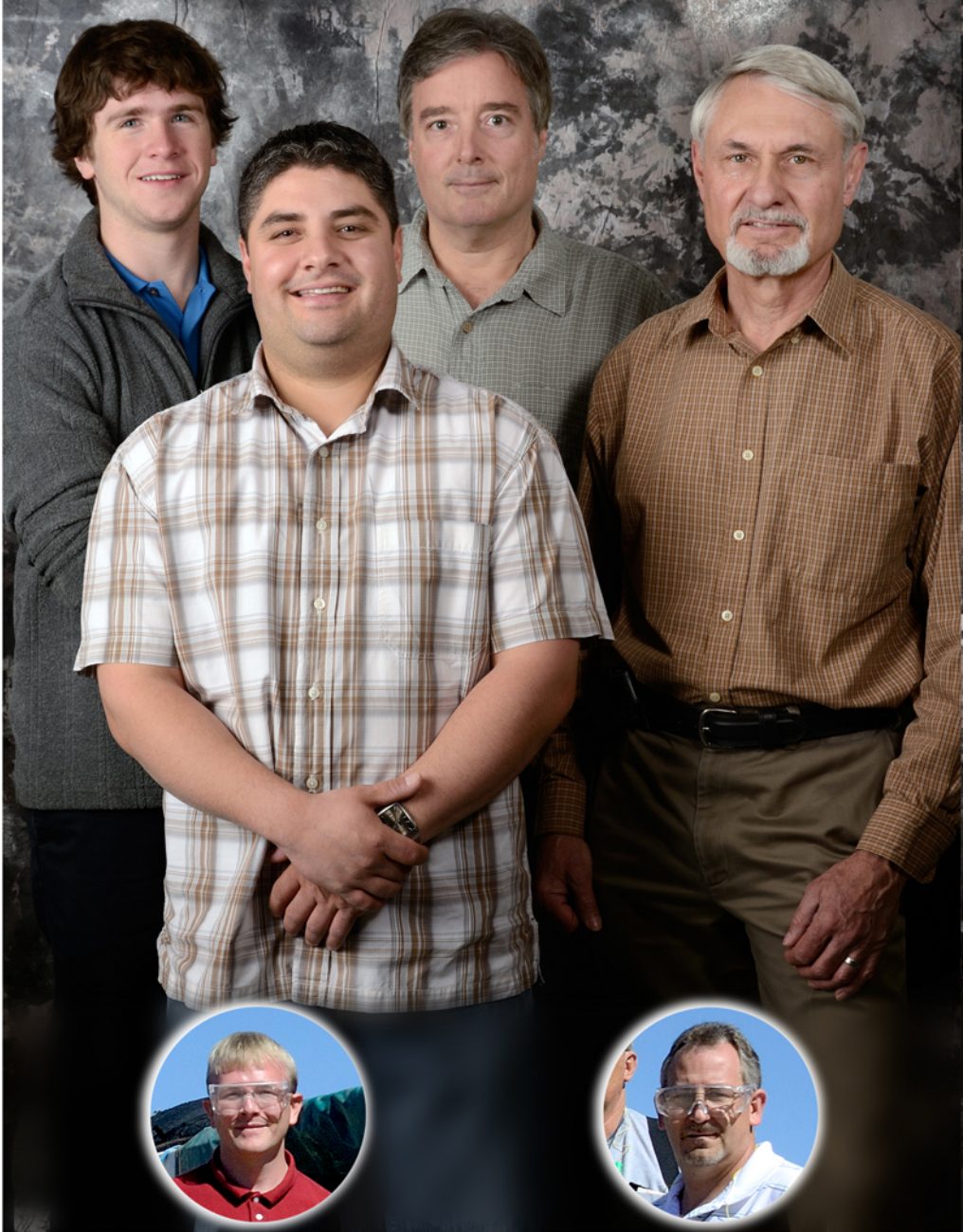
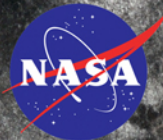


i am an INNOVATOR



National Aeronautics and
Space Administration



Promising Structural Health Monitoring (SHM) methods have been developed by the White Sands Test Facility (WSTF) NASA NDE (Nondestructive Evaluation) Working Group Stress Rupture NDE Development and In-situ Carbon Fiber Micromechanics project team. WSTF efforts have produced an enhanced Acoustic Emissions (AE) Felicity Ratio method that has been effective in predicting the point of composite failure both in single tow strands and in COPVs. The method was initially developed on IM7 and T1000 carbon strands and predicted failures to within ~2% actual failure point. More data collection on COPVs is necessary, but the data to date has predicted burst near the 2% failure point. One drawback to the method is that it is time consuming to apply given the complexities associated with reducing the AE data. To address this, the project team is working to produce an automated, real-time AE SHM system that can be implemented in future spacecraft. Current team members are Jess Waller, Charles Nichols, Ralph Lucero, Tony Carden, Jonathan Tylka (NASA Undergraduate Student Research Program (USRP) student), and project manager Regor Saulsberry. Other USRP students who have made key contributions to the project are Eddy Andrade, Elise Kowalski, Doug Weathers, and Dan Wentzel.